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BEFORE THE ENVIRONMENTAL QUALITY COUNCIL  
STATE OF WYOMING

In re Brook Mining Co., LLC coal mine )  
Permit – PT0841 ) EQC Docket No. 20-4802  
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**AFFIDAVIT OF TIMOTHY A. ROSS, P.E.**

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I, Timothy A. Ross, P.E., being of lawful age and first duly sworn upon oath, depose and state as follows:

1. I serve as Principal and Sr. Vice President, Agapito Associates, Inc., Golden, Colorado.
2. I am responsible for the Agapito Associates, Inc., Golden, CO office specializing in mining operations, mine design, ground control and mine engineering for underground mining, highwall mining, surface mining and underground storage caverns.
3. I have worked on mining projects located in the U.S., Europe, Brazil, Peru, Canada, Mexico, Columbia, China, Singapore, India, Russia, and Thailand. Projects have included copper, gold, industrial mineral, coal, salt, and potash mines.



4. I am over eighteen years of age and am competent to provide this affidavit. The information contained in this affidavit is based on my personal knowledge.
5. I have over forty years of experience in the mine engineering field.
6. I was recently asked to review numerous documents, reports, and expert analysis related to subsidence regarding the Brook Mining permit issued by the Wyoming Department of Environmental Quality (“WDEQ”) on July 7, 2020. I reviewed all expert reports, all public comments, all comments and testimony from the informal conference regarding subsidence and our file in this matter.
7. Included in the public comments were matters raised by Dr. Marino of Marino Engineering Associates, Inc. in his reports. Dr. Marino was hired by the Powder River Basin Resource Council (“PRBRC”) to consult about the Brook Mining Permit Application.
8. WDEQ had previously hired Dan Overton to provide WDEQ/LQD with independent expertise and opinion on the issue of the subsidence control plan.
9. WDEQ also had received the public comments, analysis, and my report of Agapito Associates, Inc.
10. Brook Mine Permit conditions 9 and 10 were added after the informal conference to address the public comments and expert analysis of Dr. Marino, the mine engineering expert hired by the PRBRC.
11. Conditions 9, 10, and 11 impose greater subsidence conditions on Brook than I have experienced at other mines in my professional career.

12. Dr. Marino made comments regarding the subsidence plan for the Brook Mine which were addressed in the permit with the conditions that were imposed on the Brook Mine Permit.
13. Pursuant to the July 7, 2020, permit, Brook is not entitled to mine any highwall mining panel until it has complied with the permit conditions which are now incorporated into the mining application and permit.
14. Condition 9 of the permit requires that Brook provide the WDEQ/LQD with the results from geotechnical property testing of cores from a minimum of at least three geotechnical core holes for each highwall panel to be mined.
15. All actions required by Condition 9 and 10 must be completed before commencing mining in the TR-1 area or any subsequent highwall mining panel.
16. Consistent with the comments of Dr. Marino, for the TR-1 area, this will require drilling and sampling at least two more core holes in addition to the previously tested hole 2017-4 core.
17. Condition 9 requires that samples will be collected from each core hole and must include the roof, coal, and floor samples of the proposed highwall mining panel.
18. Condition 9 requires that for all future core holes, Atterberg limits and consolidated-drained triaxial testing must be performed in addition to the testing procedures performed on core whole 2017-4.
19. Condition 9 also requires that the results of the core laboratory testing must be reviewed and analyzed by a Wyoming registered professional geologist or engineer. The mine plan and subsidence control plan will then be revised, if necessary, based upon the additional data and analysis.

20. The subsidence control plan incorporated in the permit, is complete and accurate and provides the best protection for Wyoming and its citizens, and the environment and is designed to minimize the risk of subsidence and material damage to the surface above any highwall mining panel.
21. Condition 10 requires that all data and analysis from the geotechnical testing required in condition 9, shall be submitted to WDEQ/LQD in the form of non-significant revisions to the mine plan and subsidence control plan. After completion of the additional testing and study, all results must be supplied to WDEQ for WDEQ consideration and regulatory action.
22. Brook mine cannot commence mining in any highwall mining panel until WDEQ/LQD has provided written approval of the corresponding non-significant revision.
23. Conditions 9 and 10, along with the application and the permit, create the best possible subsidence control plan giving Brook and its professional geologist and/or engineer and WDEQ/LQD the ongoing benefit of understanding each panel and the results of testing and analysis and the results of mining before providing Brook the opportunity to begin working any other highwall mining panel. As WDEQ analyzes submissions for each highwall mining panel, in future years, Brook and WDEQ will have access to the knowledge of the physical characteristics present in the mine. This knowledge of the geology, hydrology, and other physical characteristics in the Brook mine will substantially aid in preventing subsidence during the life of the mine.
24. Condition 11 further states “regardless of its right to subside the surface, the operator acknowledges that, if subsidence due to mining operation causes material damage or reduces the value of the reasonably foreseeable use of the surface lands, the land will to

the extent technologically feasible, be restored to a condition capable of supporting the uses it was capable of supporting prior to subsidence. The operator will continue to perform remediation on any subsidence, detected during or subsequent to the six-month monitoring period, until bond release is approved.”

25. The permit set forth a process for the submission of additional information in future years of the permit.

26. It is my professional opinion, to a degree of reasonable scientific certainty, that the subsidence plan incorporated into the Brook mine permit will more than likely prevent any material damage from occurring to the surface above any highwall mining panel. If material damage does occur to the surface above any highwall mining panel, Condition 11 of the permit and the reclamation plan requires remediation and repair of such material damage.

FURTHER YOUR AFFIANT SAYETH NAUGHT.

DATED this \_\_\_\_ day of October 2020

Timothy A. Ross  
Timothy A. Ross, P.E.

STATE OF COLORADO )  
 ) ss  
COUNTY OF MESA )

Subscribed and sworn to before me by Timothy A. Ross this 6<sup>th</sup> day of October, 2020.

Witness my hand and official seal.

Linda Patterson  
Notary Public

My commission expires:

LINDA PATTERSON  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 19954006238  
MY COMMISSION EXPIRES 12/14/2023